REMARKS

Claims 1-10 and 12-17 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1, 6-8 and 13-16. Claim 11 has been canceled. New claim 17 has been added according to the allowable subject matter noted in the rejection. Specifically new claim 17 is a combination of the features of original claims 1 and 11. It is Applicant's position that claim 17 is in condition for allowance.

Claims 1-4, 8 and 9 have been rejected under 35 U.S.C. 102(b) as being anticipated by Nistri et al. (US 4,650,409).

The present invention relates to a device for mixing fibers in a gaseous flow. The device comprises a pervious wire. On one side of the wire is a forming head and on another side of the wire is a suction box. A duct is in communication with the forming head and feeds fibers suspended in a gaseous flow into the forming head. A fiber mixing device is arranged along the fiber feeding duct at a location upstream of the forming head. A first pair of rotors are located on an inlet side of the fiber mixing device and a second pair of rotors are located on an outlet side of the fiber mixing device. The rotors are arranged such that each rotation axis of each rotor is substantially orthogonal to the gaseous flow. The fact that the mixing fiber is located upstream of the forming head is significant in the present invention because it advantageously allows the fibers to be premixed before the fibers are delivered to the forming head. This advantageously uniformly mixes the fibers so that the fibers are not lumped together when they are placed on the pervious wire via the forming head. This advantageously provides for a more uniform layer of fiber material.

Nistri et al. discloses a mill 1 that receives cellulosic material. The cellulosic material is disgregated into fibers which are entrained out of the mill suspended in a stream of air created by an exhauster 3. The suspension of fibers and air is fed through the conduit 4 into a formation head 5. The formation head 5 comprises a casing 105 of rectangular configuration, closed at the bottom by a perforated screen 205 and having a number of openings 305 in the top wall for communication with the atmosphere. A frame 6 is mounted to slide on a horizontal plane parallel to the bottom 205 of the head 5. This frame extends into the interior of the head 5 and a set of mutually parallel rollers 7 provided with radial needles 107 are rotatably mounted on the frame. A web 8 is located below the head 5. The fibers that are passed through the perforated bottom 205 of the casing 5 are deposited in the form of a layer S on to the web 8 due to the action of the casing 9 connected to a vacuum source 10. In another embodiment, a second set of rollers 7' are mounted above the set of rollers 7. The second set of rollers 7' have axes perpendicular to the axes of the rollers 7. The second set of rollers 7' are rotatably supported by a frame 6' reciprocatingly movable in a plane parallel to the plane of the frame 6.

Nistri et al. fails to teach and fails to suggest the combination of a fiber mixing device located upstream of a forming head. Nistri et al. merely discloses rollers 7, 7' arranged within a formation head 5 and above an aperture of the formation head 5 from which the fibers are fed towards a forming wire 8. However, Nistri et al. provides no suggestion for a mixing device located upstream of the formation head 5 as claimed. In contrast to Nistri et al., the fiber mixing device of the present invention is located upstream of the forming head. This advantageously allows the fibers to be premixed so that the fibers are not lumped together when

they are passed on to the forming head via a duct. This advantageously allows a more uniform layer of fiber to be applied to a pervious wire via the forming head. Nistri et al. fails to disclose such an advantage since Figure 3 of Nistri et al. clearly shows that the rollers 7, 7' with spikes are arranged in the open space of the formation head 5. Compared with the present invention, Nistri et al. provides no teaching that the fibers are mixed by rollers 7, 7' prior to entering the formation head 5 as claimed. As such, the prior art as a whole takes a different approach and fails to suggest important features of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 and all claims that depend thereon.

Claims 5-7 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Nistri et al. in view of Wyss et al. (US 2,676,694). Although Wyss et al. teaches an apparatus for uniformly dispensing a pourable material, the references as a whole fail to suggest the combination of features claimed. Specifically, Nistri et al. does not suggest or teach the combination of a fiber mixing device located upstream of a forming head. The references as a whole provide no suggestion of using the teachings of Wyss et al. to modify the apparatus of Nistri et al. The references together do not suggest the combination of features claimed. One of ordinary skill in the art is presented with various concepts, but these concepts do not provide any direction as to combining the features claimed. All claims define over the prior art as a whole.

Claims 12-16 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Nistri et al.

As previously discussed above, Nistri et al. fails to teach or suggest the combination of a fiber mixing device located upstream of a forming head. As clearly shown in Figure 1 and Figure 3 of Nistri et al., the rollers 7, 7' are located within the formation head 5. In contrast to Nistri et al., the present invention takes a different approach. In the present invention, the fiber mixing device mixes the fibers with rotors before the fibers are supplied to the forming head. This advantageously reduces the amount of lumps of fibers in the gaseous flow of fibers so that the fibers are applied uniformly to a pervious wire via the forming head. Compared with the present invention, Nistri et al. only suggests fibers that are mixed via rollers 7, 7' located within a formation head 5. The fibers of Nistri et al. are not mixed prior to feeding the fibers into the formation head 5 since Nistri et al. clearly discloses that the rollers 7, 7' are located within the formation head 5. As such, the prior art takes a different approach and fails to teach each feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claims 1, 13 and 14 as now presented and all claims that respectively depend thereon.

Claim 10 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Nistri et al. in view of Swenson et al. (US 672,297). As previously discussed above, Nistri et al. fails to provide any suggestion for the combination of a fiber mixing device that is located upstream of a forming head. As such, the references together do not suggest the combination of features claimed. One of ordinary skill in the art is presented with various concepts, but these concepts do not provide any direction as to combining the features claimed. All claims define over the prior art as a whole.

Favorable action on the merits is requested.

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